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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/884,147	06/20/2001	Takeshi Aikiyo	FP 672- US(CIP)/PCT	5121
26381	7590	01/27/2005	EXAMINER	
LACASSE & ASSOCIATES, LLC 1725 DUKE STREET SUITE 650 ALEXANDRIA, VA 22314			JACKSON, CORNELIUS H	
			ART UNIT	PAPER NUMBER
			2828	

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary**Application No.**

09/884,147

Applicant(s)

AIKIYO ET AL.

Examiner

Cornelius H. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 November 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-18,21-34 and 36-42 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 37-42 is/are allowed.
- 6) ☒ Claim(s) 1-3,6,16,21,25,31 and 32 is/are rejected.
- 7) ☒ Claim(s) 5,7-15,17,18,22-24,26-30,33,34 and 36 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/12/01;12/26/01&08/04/04</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I (claims 1-3, 5-18, 21-34 and 36-42) in the reply filed on 18 November 2004 is acknowledged.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 25, 31 and 32 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagakubo et al. (5515682). Regarding claim 1, Nagakubo et al. disclose semiconductor module comprising a semiconductor laser element 2; and a thermo-module 1 for adjusting the temperature of the semiconductor laser element 2 in dependence upon an amount of current flowing into said thermo-module 1 and at least one of an overcurrent limiting circuit 29,30, **see col. 6, lines 37-43** to suppress an overcurrent flowing into the thermo-module and an overvoltage limiting circuit (**this limitation was not considered since the claim only require at least one of an**

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overcurrent or an overvoltage limiting circuit) to suppress application of an overvoltage across said thermo-module.

Regarding claim 25, Nagakubo et al. disclose a method comprising the steps of: thermally connecting a thermo-module 1 to a semiconductor laser element 2, **see col. 5, lines 33-35**; adjusting the temperature of the semiconductor laser element 2 in dependence upon an amount of current flowing into the thermo-module 1, **see col. 6, lines 7-15**; and suppressing some of an overcurrent flowing into the thermo-module 1 by providing an overcurrent flow limiting circuit 29,30 for the thermo-module 1, **see col. 6, lines 34-43**.

Regarding claim 31, Nagakubo et al. disclose a device comprising: an optical element 2; a thermo-module 1 configured to support the optical element 2 and to variably adjust the temperature of the optical element in dependence upon an amount of a current flowing into the thermo-module, **see col. 6, lines 7-9** (the Peltier device/thermo-module is controlled by varying the current/direction of the current in order to adjust the temperature of the optical element 2 to a fixed value); and an overcurrent limiting circuit 29,30, **see col. 6, lines 37-43** configured to suppress an overcurrent from flowing into the thermo-module, **see col. 6, line 34-43**.

Regarding claim 32, Nagakubo et al. disclose wherein the overcurrent limiting circuit 29,30, **see col. 6, lines 37-43** is provided in a power source apparatus 13.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 2, 3, 6, 16 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nagakubo et al. (5515682) as applied to claim 1 above, and further in view of Aiki et al. (4803361). Regarding claim 2, Nagakubo et al. teach all the stated limitations except for an optical fiber optically coupled for receiving laser light emitted from the semiconductor laser element. Aiki et al. teach that it is well known in the art for an optical fiber 5 optically coupled for receiving laser light emitted from the semiconductor laser element in a semiconductor module, **see col. 1, lines 6-36**. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the well known arrangement of an optical fiber to guide the laser light emitted from the semiconductor laser element to a point outside of the semiconductor module/package so that the light emitted may be used for a given application.

Regarding claim 3, Aiki et al. teach wherein the thermo-module is configured to support the semiconductor laser element via solder, and comprising a reverse current flow prevention circuit for preventing current oriented for causing melting of the solder, **see col. 10, lines 58-68**.

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Regarding claim 6, Nagakubo et al. teach the thermo-module 1 comprises at least an element for alternatively heating and cooling in dependence upon a direction of current flowing therein, and wherein the overcurrent limiting circuit is electrically coupled with the at least an element to divert current flowing thereto and oriented for causing heating of the semiconductor laser element 2, **see col. 5, line 32-col. 6, line 43.**

Regarding claim 16, Aiki et al. teach a package 1 for storing therein the semiconductor laser element 15 and the thermo-module 10, the thermo-module 10 being mounted on a first plate 9 of the package 1 and Nagakubo et al. teach wherein the thermo-module 1 comprises a first substrate 6 adjacent the first plate 9 **of Aiki et al.**, a second substrate 5 and a Peltier element 7n disposed therebetween; wherein the semiconductor laser element 2 is disposed on the second substrate 5 and thermally connected to said thermo-module 1 and wherein the overcurrent limiting circuit is disposed on at least one of the first substrate 6 and the first plate 9.

Regarding claim 21, Aiki et al. teach a package 1 having a through hole communicating from the inside of the package 1 to the outside thereof for accommodating the semiconductor laser element 15 and the thermo-module 10; an optical fiber supporting member 4 disposed within the through hole; wherein an end portion side of an optical fiber 5 is for being introduced from the outside of said package 1 into the inside thereof via a through hole provided in said optical fiber supporting member 4.

Allowable Subject Matter

1. Claims 5, 7-15, 17, 18, 22-24, 26-30, 33, 34 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
2. Claims 37-42 are allowed.
3. The following is a statement of reasons for the indication of allowable subject matter: Prior Art fail to teach a method as claimed wherein the overcurrent flow limiting circuit includes a bypass path disposed in parallel to the thermo-module.

Response to Arguments

6. Applicant's arguments with respect to claims 1-36 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cornelius H. Jackson whose telephone number is (571)272-1942. The examiner can normally be reached on 8:00 - 5:00, Monday - Friday.

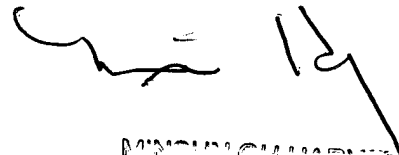
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MinSun Harvey can be reached on (571)272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



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